ACC-i2 with TCT

DISTAL EMBOLIZATION DURING ELECTIVE HIGH-RISK PERCUTANEOUS CORONARY INTERVENTION

i2 Poster Contributions
McCormick Place South, Hall A
Saturday, March 24, 2012, 9:30 a.m.-Noon

Session Title: PCI in Complex Lesions
Abstract Category: 19. PCI - Thrombectomy/Atherectomy/Embolic Protection and SVG Intervention
Presentation Number: 2524-293

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Background: Plaque disruption during percutaneous coronary intervention (PCI) can result in distal embolization (DE), microvascular obstruction and myonecrosis. In the absence of mechanical complications, DE is a major contributor to PCI-related or peri-procedural myocardial infarction (PMI) and is associated with major adverse cardiac events. While DE has been reported in PCI in the context of acute coronary syndromes (ACS), studies in the elective PCI setting are limited. This prospective observational study was undertaken to determine the incidence of DE during high-risk elective PCI as detected by elevation in periprocedural biomarkers and correlation with myocardial perfusion imaging (MPI - Tc-99m Sestamibi SPECT) and transthoracic echocardiography (TTE).

Methods: Patients referred for elective PCI with risk factors for DE (saphenous vein graft (SVG) intervention, planned Rotablator use or visible thrombus) were enrolled. Embolization protection devices were used where anatomically possible. For the purpose of this study PMI was defined as an elevation of cardiac troponin (cTnI) >3x the 99th percentile of the upper reference limit. Serum cTnI were collected prior to, at 8 and 16 hours post-PCI. TTE and MPI were performed prior to, immediately after and 24 hours post-PCI.

Results: 15 patients underwent elective PCI for angina (9 SVG, 6 Rotablator). All patients had angiographically successful PCI with TIMI 3 final flow and <10% residual stenosis. 8 (53%) patients had biomarker evidence of PMI with only 1 (12.5%) patient having angiographically visible distal macroembolization. 3 (38%) patients with PMI had new/worsening of regional wall motion abnormalities on TTE. MPI did not demonstrate any new/worsening perfusion abnormalities in any of the PMI patients but instead noted improvement in resting perfusion defects post-PCI in 5 patients. MPI demonstrated worsening of inferior defects post-PCI in 2 male patients without PMI.

Conclusion: The incidence of DE and resultant PMI is significant in the high-risk elective PCI setting, despite apparent angiographic success, and is similar to that found in ACS. Current MPI techniques are relatively insensitive for the detection of DE.